

LIST OF CURRENT CLAIMS

1. (Currently Amended) A travel control apparatus for a wheel-driven vehicle, comprising:

a steering operation device configured to receive steering input to steer a wheel to be steered of the vehicle;

a steering angle detector configured to detect a steering angle of the wheel, the steering angle being a direction and steered angle of the wheel to be steered;

a steering actuator configured to change the steering angle of the wheel;

a steering controller configured to control the steering actuator so that the steering angle of the wheel, which is detected by the steering angle detector[[,]] becomes a target steering angle of the wheel which is set in response to an operation command outputted from the steering operation device, and

a traveling speed regulator configured to regulate the traveling speed of the vehicle in accordance with an operational state of the steering operation device and an actuation state of the steering actuator,

wherein the steering control controller is configured to actuate the steering actuator at a first actuation speed if the size of the steering angle, which is obtained on the basis of detection information from the steering angle detector, is a predefined reference amount or lower, and to actuate the steering actuator at a second actuation speed, which is lower than the first actuation speed, for the same operation command when the size of the steering angle exceeds the reference amount, and

wherein the steering control controller is configured to actuate the steering actuator such that the larger the detected steering angle with respect to a straight forward direction of the wheel, the slower the actuation speed of the steering actuator actuated by the steering controller.

2. (Previously Presented) The travel control apparatus for a vehicle according to claim 1, wherein the traveling speed regulator is configured to compare the target steering angle of the wheel, which is set in accordance with an operational state of the steering operation device, with the detected steering angle of the wheel, which is detected by the steering angle detector, and, when difference between the target steering

angle and the detected steering angle is a predetermined value or higher, to regulate the traveling speed of the vehicle to a predetermined speed or lower.

3. (Previously Presented) The travel control apparatus for a vehicle according to claim 1, wherein the traveling speed regulator is configured to control and compare the target steering angle of the wheel, which is set in accordance with an operational state of the steering operation device, with the detected steering angle of the wheel, which is detected by the steering angle detector, and to gradually reduce the traveling speed of the vehicle as the difference between the target steering angle and the detected steering angle increases.

4. (Previously Presented) The travel control apparatus for a vehicle according to claim 3, wherein the traveling speed regulator is configured to set a deceleration which increases as the difference increases, and to perform a control to gradually reduce the traveling speed of the vehicle on the basis of the set deceleration.

5. (Previously Presented) The travel control apparatus for a vehicle according to claim 1, further comprising:

a steering operation speed detector configured to obtain an operation speed of the steering operation device,

wherein, when the operation speed of the steering operation device, which is obtained by the steering operation speed detector, is a predetermined value or higher, the traveling speed regulator regulates the traveling speed of the vehicle so that the traveling speed of the vehicle becomes a predetermined speed or lower.

6. (Previously Presented) The travel control apparatus for a vehicle according to claim 1, further comprising:

a steering operation speed detector configured to obtain an operation speed of the steering operation device,

wherein, when the operation speed of the steering operation device, which is obtained by the steering operation speed detector, is a predetermined value or higher,

the traveling speed regulator is configured gradually to reduce the traveling speed of the vehicle as the operation speed increases.

7. (Previously Presented) The travel control apparatus for a vehicle according to claim 6, wherein the traveling speed regulator is configured to set a deceleration which increases as the operation speed increases, and to perform a control to gradually reduce the traveling speed of the vehicle on the basis of the set deceleration.

8. (Previously Presented) The travel control apparatus for a vehicle according to claim 1, further comprising:

a steering actuator actuation speed detector configured to obtain an actuation speed of the steering actuator,

wherein, when the actuation speed of the steering actuator, which is obtained by the steering actuator actuation speed detector, is a predetermined value or higher, the traveling speed regulator is configured to regulate the traveling speed of the vehicle so that the traveling speed of the vehicle becomes a predetermined speed or lower.

9. (Previously Presented) The travel control apparatus for a vehicle according to claim 1, further comprising:

a steering actuator actuation speed detector configured to obtain an actuation speed of the steering actuator,

wherein, when the actuation speed of the steering actuator, which is obtained by the steering actuator actuation speed detector, is a predetermined value or higher, the traveling speed regulator is configured to perform a control to gradually reduce the traveling speed of the vehicle as the actuation speed increases.

10. (Previously Presented) The travel control apparatus for a vehicle according to claim 9, wherein the traveling speed regulator is configured to set a deceleration which increases as the actuation speed increases, and to perform a control to gradually reduce the traveling speed of the vehicle on the basis of the set deceleration.

11. (Cancelled)

12. (Currently Amended) The travel control apparatus for a vehicle according to claim [[11]] 1, wherein the steering controller is configured to actuate the steering actuator at the first actuation speed when the target steering angle is set so that the size of the steering angle becomes the reference amount or lower from the state in which the size of the steering angle exceeds the reference amount, even if the size of the steering angle still exceeds the reference amount.

13. (Previously Presented) The travel control apparatus for a vehicle according to claim 1, wherein the larger the steering angle with respect to a straight forward direction of the wheel, the steering angle being detected by the steering angle detector, the slower the actuation speed of the steering actuator actuated by the steering controller.

14. (Previously Presented) The travel control apparatus for a vehicle according to claim 1, further comprising:

a steering mechanism having a pair of knuckle arms swingably supporting a pair of the wheels to be steered around kingpin axes, and a tie rod connecting the pair of knuckle arms,

wherein the steering actuator is configured to drive the steering mechanism to change the steering angles of the wheels,

the steering angle detector being attached to one of the pair of right and left wheels, and

the steering controller is configured to control the actuation of the steering actuator so that one of the steering angles of the pair of right and left wheels

detected by the steering angle detector becomes the target steering angle which is set in response to an operation command outputted from the steering operation device.

15. (Previously Presented) The travel control apparatus for a vehicle according to claim 14, wherein

the steering mechanism is characterized in that a difference is generated between the steering angles of the pair of right and left wheels when the vehicle turns, and

the target steering angle is set for one of the pair of right and left wheels to which the steering angle detector is attached, in accordance with an operation direction and the amount of operation of the steering operation device, and

the steering controller is configured to perform a control to actuate the steering actuator on the basis of the characteristic of the steering mechanism so that the steering angle of one of the pair of right and left wheels, which is detected by the steering angle detector, becomes the target steering angle which is set in accordance with the operation direction and the amount of operation of the steering operation device.

16. (Currently Amended) A travel control apparatus for a wheel-driven vehicle, comprising:

steering operation device configured to receive steering input to steer a wheel to be steered of the vehicle;

a steering angle detector configured to detect a steering angle of the wheel, the steering angle being a direction and steered angle of the wheel to be steered;

a steering actuator configured to change the steering angle of the wheel;

a steering controller configured to control the steering actuator so that the steering angle of the wheel, which is detected by the steering angle detector[[,]] becomes a target steering angle of the wheel which is set in response to an operation command outputted from the steering operation device;

a traveling speed regulator configured to regulate the traveling speed of the vehicle in accordance with an operational state of the steering operation device and an actuation state of the steering actuator; and

a steering mechanism having a pair of knuckle arms swingably supporting a pair of the wheels to be steered around kingpin axes, and a tie rod connecting the pair of knuckle arms,

wherein the steering actuator is configured to drive the steering mechanism to change the steering angles of the wheels,

the steering angle detector being attached to one of the pair of right and left wheels to be steered, and

the steering controller is configured to control the actuation of the steering actuator so that one of the steering angles of the pair of right and left wheels detected by the steering angle detector becomes the target steering angle which is set in response to an operation command outputted from the steering operation device;

wherein the steering mechanism is characterized in that a difference is generated between the steering angles of the pair of right and left wheels when the vehicle turns, and

the target steering angle is set for one of the pair of right and left wheels to which the steering angle detector is attached, in accordance with an operation direction and the amount of operation of the steering operation device, and

the steering controller is configured to actuate the steering actuator on the basis of the characteristic of the steering mechanism so that the steering angle of one of the pair of right and left wheels, which is detected by the steering angle detector, becomes the target steering angle which is set in accordance with the operation direction and the amount of operation of the steering operation device,

wherein the steering control controller is configured to actuate the steering actuator such that the larger the detected steering angle with respect to a straight forward direction of the wheel, the slower the actuation speed of the steering actuator actuated by the steering controller.